

IN THE CLAIMS

Please amend the claims as follows:

Claim 1 (Currently Amended): A method of depositing a silicon-containing film on a substrate, the method comprising:

providing a substrate in a process chamber of a processing system;

heating the substrate;

exposing a [[HCD]] process gas to the substrate; and

depositing a silicon-containing epitaxial film on the substrate using the [[HCD]] process gas,

wherein the process gas consists of HCD gas or HCD gas and at least one gas from the group consisting of a dopant gas, H₂, a germanium-containing gas, and an inert gas.

Claim 2 (Original): The method according to claim 1, wherein the exposing comprises exposing an inert gas to the substrate.

Claim 3 (Previously Presented): The method according to claim 2, wherein the exposing further comprises flowing the HCD gas at a flow rate between about 5 sccm and about 1,000 sccm and the inert gas at a flow rate between about 5 sccm and about 20,000 sccm.

Claim 4 (Canceled).

Claim 5 (Original): The method according to claim 1, wherein the exposing further comprises exposing H₂ to the substrate.

Claim 6 (Currently Amended): The method according to claim 1, wherein the exposing further comprises flowing ~~a hydrogen-containing gas~~ H₂ at a flow rate between about 5 sccm and about 5,000 sccm.

Claims 7-11 (Canceled).

Claim 12 (Currently Amended): The method according to claim 1, wherein the ~~exposing further comprises exposing a HCD gas and at least one~~ dopant is selected from the group consisting of a phosphor-containing gas, a boron-containing gas, and ~~a nitrogen-containing gas to the substrate~~ an arsenic-containing gas.

Claim 13 (Currently Amended): The method according to claim 1, wherein the ~~dopant includes exposing further comprises exposing a HCD gas and~~ at least one of a group consisting of PH₃, B₂H₆, [[BCl₃]] and AsH₃ ~~to the substrate~~.

Claims 14-15 (Canceled).

Claim 16 (Original): The method according to claim 1, wherein the exposing further comprises exposing a germanium-containing gas to the substrate.

Claim 17 (Canceled).

Claim 18 (Currently Amended): The method according to claim 1, wherein the germanium-containing gas is ~~exposing further comprises exposing at least one of~~ GeH₄ and GeCl₄ ~~to the substrate~~.

Claim 19 (Currently Amended): The method according to claim 1, wherein the exposing further comprises exposing ~~a hydrogen-containing gas~~ H_2 and a germanium-containing gas to the substrate.

Claim 20 (Original): The method according to claim 1, wherein the exposing further comprises exposing H_2 and GeH_4 to the substrate.

Claim 21-22 (Canceled).

Claim 23 (Currently Amended): The method according to claim 1, wherein the exposing comprises exposing a HCD process gas including HCD gas and a germanium-containing gas to the substrate; and the depositing comprises depositing a SiGe-containing epitaxial film on the substrate.

Claim 24 (Currently Amended): The method according to claim 23, wherein the depositing comprises selectively depositing a SiGe-containing epitaxial film on a silicon surface.

Claim 25 (Currently Amended): The method according to claim 23, wherein the depositing comprises depositing a SiGe-containing epitaxial film having a germanium content below about two atomic percent.

Claim 26 (Currently Amended): The method according to claim 23, wherein the depositing comprises depositing a SiGe-containing epitaxial film having a germanium content greater than about two atomic percent.

Claim 27 (Original): The method according to claim 1, wherein the heating comprises heating the substrate to between about 500°C and about 900°C.

Claim 28 (Currently Amended): The method according to claim 1, wherein the heating ~~comprising~~ comprises heating the substrate to between about 700°C and about 900°C.

Claim 29 (Previously Presented): The method according to claim 1, wherein the heating comprises heating the substrate to a temperature of about 800°C and the depositing comprises selectively depositing an epitaxial silicon-containing film on a silicon surface of the substrate.

Claim 30 (Currently Amended): The method according to claim 1, wherein the heating comprises heating the substrate to a temperature of about 700°C and the depositing comprises non-selectively depositing the silicon-containing epitaxial film on the substrate.

Claim 31 (Previously Presented): The method according to claim 1, further comprising providing a process chamber pressure less than about 100 Torr.

Claim 32 (Previously Presented): The method according to claim 1, further comprising providing a process chamber pressure less than about 10 Torr.

Claim 33 (Previously Presented): The method according to claim 1, further comprising providing a process chamber pressure of about 0.4 Torr.

Claim 34 (Original): The method according to claim 1, further comprising:
pretreating the substrate prior to exposing a HCD process gas to the substrate.

Claim 35 (Original): The method according to claim 34, wherein the pretreating comprises exposing a H₂ gas to the substrate at a substrate temperature between about 500°C and about 1000°C.

Claim 36 (Original): The method according to claim 34, wherein the pretreating comprises exposing a H₂ gas to the substrate at a substrate temperature of about 900°C.

Claim 37 (Original): A computer readable medium containing program instructions for execution on a processor, which when executed by the processor, cause a processing apparatus to perform the steps in the method recited in claim 1.

Claim 38 (Withdrawn): A system for processing a substrate, comprising:
means for providing a substrate in a process chamber of a processing system;
means for heating the substrate;
means for exposing a HCD process gas to the substrate to deposit a silicon-containing epitaxial film on the substrate.

Claim 39 (Withdrawn): A processing tool for depositing a silicon-containing film on a substrate comprising:

- a processing system;
- a transfer system configured to provide the substrate in a process chamber of the processing system;
- a heater for heating the substrate;
- a gas injection system configured to expose a HCD process gas to the substrate in the processing system to form a silicon-containing epitaxial film on the substrate; and
- a controller configured to control the processing tool.

Claim 40 (Withdrawn): The processing tool according to claim 39, wherein the processing system comprises a batch type processing system or a single wafer processing system.

Claim 41 (Withdrawn): The processing tool according to claim 39, wherein the processing system comprises a batch type processing system containing a process tube.

Claim 42 (Withdrawn): The processing tool according to claim 39, wherein the processing system comprises a thermal processing system, a plasma processing system, or an atomic layer deposition system.

Claim 43 (Withdrawn): The processing tool according to claim 39, further comprising a processing system configured for pretreating the substrate.

Claim 44 (Withdrawn): The processing tool according to claim 39, further comprising a process monitoring system.

Claim 45 (Withdrawn): The processing tool according to claim 39, wherein the gas injection system is configured to expose a HCD process gas comprising HCD and an inert gas and at least one of a hydrogen-containing gas, a silicon-containing gas, and a germanium-containing gas to the substrate.

Claim 46 (Withdrawn): The processing tool according to claim 40, wherein the gas injection system is configured to expose a HCD process gas comprising HCD and an inert gas and at least one of a dopant gas and a halogen-containing gas to the substrate.

Claim 47 (Currently Amended): A method of depositing a silicon-containing film on a substrate, the method comprising:

providing a substrate in a process chamber of a processing system;
heating the substrate;
exposing a [[HCD]] process gas to the substrate; and
depositing a silicon-containing epitaxial film on the substrate using the [[HCD]] process gas,

wherein the depositing comprises selectively depositing an epitaxial Si film on a crystalline Si substrate,

wherein the process gas consists of HCD gas or HCD gas and at least one gas from the group consisting of a dopant gas, H₂, a germanium-containing gas, and an inert gas.

Claim 48 (Canceled).

Claim 49 (Currently Amended): A method of depositing a silicon-containing film on a substrate, the method comprising:

providing a substrate in a process chamber of a processing system;
heating the substrate;
exposing a [[HCD]] process gas to the substrate; and
depositing a silicon-containing epitaxial film on the substrate using the [[HCD]] process gas,

wherein the depositing comprises selectively depositing an epitaxial SiGe film on a crystalline Si substrate,

wherein the process gas consists of HCD gas and a germanium-containing gas or HCD gas and a germanium-containing gas and at least one gas from the group consisting of a dopant gas, H₂, and an inert gas.

Claim 50-51 (Canceled).